

iguanas, pelicans, blue-footed boobies, frigate birds, noddies, lava gulls, and three species of herons are commonly seen feeding in and around the bay.

Las Grietas - These large fissures in the lava shoreline are not far from Puerto Ayora. Where they join with the sea, they are home to resting sea turtles and sharks. Further inland where the water is brackish due to mixing of seawater with freshwater draining from the island, blind cave fish and crayfish are found.

Cerro Crocker and Media Luna - The best views of adjacent islands exist from this high vantage point on a clear day. Media Luna, an old volcanic crater covered with *Miconia* plants and surrounded by moisture-loving ferns, is a major nesting area for the dark-rumped petrel.

Los Túneles - This complex of lava tubes located on private land allows the visitor to appreciate the magnitude of volcanic eruptions. For a small admission charge, the visitor equipped with a flashlight can explore one of the longest lava tubes in South America, a natural tunnel nearly 1 km in length.

Tortoise Reserve - The tortoise reserve is located near the boundary between the Galápagos National Park and the Colonized Zone and can be reached on foot or horseback by following the trail from Santa Rosa. Here the visitor can see giant tortoises in their native habitats. During the wettest seasons, ponds form at various sites and the tortoises regularly soak in the water to remove ticks and other parasites.

Los Gemelos - The twin craters with nearly vertical walls produced by major collapses are located near the Cross-island Road. Surrounding Los Gemelos is a dense forest of regenerating *Scalesia* trees where vermilion flycatchers are common.

Caleta Tortuga Negra - A mangrove lagoon which opens into the ocean and which is accessible to visitors only by boat, these waters are frequently used by sea turtles, rays, and sharks as a feeding and resting area. Herons commonly nest in nearby trees.

Las Bachas - This small beach where sea turtles haul out to bask and to nest is on the northwestern side of Santa Cruz. Flamingos are occasionally seen in the lagoon nearby. Formerly the removal of sand from the beaches in this area for construction on Santa Cruz threatened to produce a shoreline of barren rock. Use of alternative construction materials has allowed preservation of many small beaches that were threatened.

Canal de Itabaca - This narrow body of turquoise-blue water between Baltra and Santa Cruz is often a visitor's first view of Galápagos when arriving at the Baltra airport. The visitor traveling to Puerto Ayora by the Cross-island Road must cross the canal by ferry. Pelicans, boobies, shearwaters, and noddies are frequently sighted over the canal. The cliffs at the eastern end of the canal are inhabited by fur seals.

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Bernardo Gutiérrez with the male tortoise he raised as a pet. Bernardo Gutiérrez con el galápagos macho que crió como mascota.

HOW OLD IS THAT TORTOISE?

By: Thomas H. Fritts

Visitors to Galápagos frequently ask about the age, growth, and maximal life span of the giant tortoises. Often, the visitor has previously heard that turtles, and especially land tortoises, are capable of living more than a century, but the question resurfaces when confronted with the large size and regal aspect of the adult tortoises in Galápagos. Just how old are the various male tortoises in the corrals at the visitor site near the Park/Station tortoise complex on Santa Cruz? In general, little information exists on these tortoises because they are animals confiscated or voluntarily returned to the Park by people who had the tortoises in captivity at the time the Park was declared. Because no one can be sure from which island or population these tortoises came, they are held at the visitor site for educational, research, and interpretive uses.

Recently during a casual conversation with Captain Bernardo Gutiérrez, a native of San Cristóbal and operator of the tourist boat *San Juan*, a story unfolded that allows tentative establishment of the age for one of the large tortoise males seen by nearly every visitor to Galápagos. Bernardo's story follows. When

he was about 10 years old, he found a small tortoise about the size of a dinner plate on the outskirts of Puerto Baquerizo Moreno on San Cristóbal. Only a short time previously, several tortoises had escaped from a makeshift corral at the Port Captain's headquarters. The juvenile tortoises had been confiscated by local authorities from a fishing boat that had brought the tortoises from the northern coast of Volcán Wolf on Isabela. It was common knowledge among Galápagos fishermen that in contrast to most areas of Galápagos, tortoises nested near the shoreline on Volcán Wolf, and it was possible to find juvenile tortoises living within a few 100 m of the coast. Since no tortoises lived on San Cristóbal near the port, the tortoise found was undoubtedly one of the escapees.

Bernardo took the tortoise home where he and his brothers and sisters raised it as a family pet. The tortoise was found around 1945, and based on its size at the time, it must have been 3-5 years of age. The tortoise stayed with the Gutiérrez family and had grown to a large size by the late 1960s when the tortoise was returned to Santa Cruz to comply with the law prohibiting tortoises being maintained as pets. However, Bernardo is still able to distinguish the tortoise that he raised from the others in the captive herd on Santa Cruz by a particular scar on the shell resulting from an injury which the tortoise received when it unwisely tried to invade the Gutiérrez kitchen.

With some allowance for an error of 1 or 2 years in the calculation of the probable age of Bernardo's tortoise, the tortoise is 46 to 48 years of age and probably hatched from an egg between 1940 and 1942. Thus, this tortoise measuring 121 cm in shell length and having the demeanor of a giant patriarch is in fact less than halfway to attaining a century of life, and younger than many of the admiring visitors that visit the corral where he lives. These facts testify to the fact that Galápagos tortoises reach their large sizes in only a few decades, but this does not preclude the possibility that they do indeed live to ages matching or exceeding maximal longevity for humans. Recent field data collected as a part of Park conservation programs strongly suggest that some tortoises reach maturity 15-20 years after hatching and that after maturity, growth nearly stops in females and slows significantly in males. Thus the tortoise probably had achieved most of his growth prior to arriving on Santa Cruz and has grown quite slowly over the last 20 years.

Should you visit the tortoise corrals at the Park/Station Headquarters, you might recognize the tortoise pictured in this article. Among Park and Station personnel, he is known as "Guardian" and he bears a codified registration number of 48. He may be big and even majestic, but please don't consider him old. Tortoises have feelings too!

TWO NEW BUTTERFLY FISH RECORDS FROM WENMAN ISLAND

By: Godfrey Merlen

Last summer (29 May-2 June 1987) I had the opportunity to revisit the northwestern outposts of Galápagos--the islands of Culpepper and Wenman. I had visited Wenman several times over a number of years while working on the *Beagle III*. Originally I was part of a crew responsible for the placement and maintenance of a series of tide-temperature gauges organized by NOAA, the National Oceanographic and Atmospheric Administration of the United States, and Wenman had been one of the selected sites. It was marvelous to return to this island where the cliffs are alive with seabirds. Especially notable was the occasional sight of the pelagic sooty tern *Sterna fuscata*, which is an extremely abundant species in the Central Pacific, but within the Galápagos Archipelago only breeds on inaccessible Culpepper.

However, this time we were on a diving expedition, again on the faithful *Beagle III*, and we dropped our anchor in the familiar anchorage facing the western ocean in a flat, calm sea. We chose as our main diving area the two rocks, one large and the other small, just offshore from the southwestern point of Wenman (Fig. 1). We dived first on the outer vertical wall of the large rock, but later found that the channel between the rocks and the precipitous cliff of the main island was much more productive with its steep walls, boulder slopes, and stronger currents.

A questionable highlight of the dives was encountering several schools of hammerhead sharks with up to 20 individuals in a group. The sharks occasionally came so close that we could count their teeth. Numerous bottlenose dolphins in the area also showed an active interest in us.

The most exceptional fish sightings for me were two fish which have not been recorded from the Galápagos (Fig. 2): the raccoon butterfly fish (*Chaetodon lunula*) and the threadfin or golden butterfly fish (*Chaetodon auriga*) which were seen in close proximity to one another just to the southeast of the small rock. They had found something of a lee from the swirling foamy waters in a depression behind some rocks. The bottom between the two exposed rocks was rather flat and shallow (2.5-3.0 m or 8-10 ft). These fish were exceptionally attractive and recognizable with their bold stripes and markings. I had previously observed both species while diving off Christmas Island in the Central Pacific and in the Hawaiian Islands, where they are common.